

APPENDIX 5B. MANUFACTURER INTERVIEW GUIDES

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APPENDIX 5B. MANUFACTURER INTERVIEW GUIDES

5B.1 INTRODUCTION

This appendix presents samples of the interview guides used during the manufacturer interviews. The interview guides detail the questions DOE used as the basis for the discussions with manufacturers of residential dishwashers and dehumidifiers, and commercial clothes washers. The results of the manufacturer interviews were aggregated and incorporated into the engineering analysis (see Chapter 5 of the TSD) and the preliminary manufacturer impact analysis (see Chapter 12 of the TSD).

5B.2 DISHWASHER MANUFACTURER INTERVIEW GUIDE

The following questions comprised the interview guide DOE used while interviewing dishwasher manufacturers.

HOME APPLIANCE RULEMAKING ANOPR INTERVIEW GUIDE -DISHWASHERS-

DESIGN FOR ENERGY IMPROVEMENT INFORMATION REQUEST

DOE would like to confirm information on the incremental costs of increasing product efficiency by understanding the design options involved in the efficiency improvement.

Residential Dishwashers

1. Which design features impacting energy use are generally incorporated into a “baseline” standard size dishwasher?
 - Do you consider a baseline dishwasher to have mechanical or electronic controls?
 - Do you find the reliability/life of electronic controls to differ from the mechanical ones they seem to be supplanting?
 - How do the design features found in baseline standard dishwashers address customer utility?
2. What design changes are generally required to convert a typical standard size dishwasher that meets minimum federal standards (0.46 EF) to the ENERGY STAR level (0.58 EF)? Is the nature of these changes mainly related to component or unit controller efficiency?
 - Is a turbidity sensor required to meet the ENERGY STAR level?
 - What tradeoffs can be made between the wash and dry cycles to achieve ENERGY STAR level?

- What are the impacts on customer utility of the design changes made to increase efficiency to ENERGY STAR level?
 - What are the costs of the individual design options selected?
 - Are the aggregated industry costs representative of your firm's costs?
3. What additional design changes are required to achieve the 2007 ENERGY STAR levels for standard dishwashers (0.65 EF)?
 - What are the impacts on customer utility of the design changes made to increase efficiency to the 2007 ENERGY STAR level?
 - What are the costs of the individual design options selected?
 - Are the aggregated industry costs representative of your firm's costs?
 4. What design changes could be implemented to achieve an EF of over 1.0 cycles/kWh for standard dishwashers?
 - Is this EF achieved by extending the drying cycle time?
 - What is the consumer reaction to extended cycle times?
 - What are the impacts on customer utility of the design changes made to increase efficiency beyond the 2007 ENERGY STAR level up to the max tech?
 5. Would you help DOE understand and estimate the conversion capital investments that would be necessary at each candidate standard level for standard size dishwashers? What is the nature of the capital investments?
 6. Which design features impacting energy use are generally incorporated into a "baseline" compact size dishwasher?
 - Are these design features different than those for a standard size dishwasher?
 7. What design changes are generally required to convert a typical compact size dishwasher that meets minimum federal standards (0.62 EF) to the ENERGY STAR level (0.88 EF)? Is the nature of these changes mainly related to component or unit controller efficiency?
 - Is a turbidity sensor required to meet the ENERGY STAR level?
 - What tradeoffs can be made between the wash and dry cycles to achieve ENERGY STAR level?
 - What are the impacts on customer utility of the design changes made to increase efficiency to ENERGY STAR level?
 - What are the costs of the individual design options selected?
 - Are the aggregated industry costs representative of your firm's costs?
 8. What additional design changes are required to achieve the 2007 ENERGY STAR levels for compact dishwashers (0.88 EF)?
 - What are the costs of the individual design options selected?
 - What are the impacts on customer utility of the design changes made to increase efficiency to the 2007 ENERGY STAR level?

- Are the aggregated industry costs representative of your firm's costs?
9. Would you help DOE understand and estimate the conversion capital investments that would be necessary at each candidate standard level for compact dishwashers? What is the nature of the capital investments?
 10. Are installation costs a function of efficiency? Maintenance costs? Repair costs? If yes, would you please characterize this relationship by providing incremental installation, maintenance, and/or repair cost data? How are these costs different for standard vs. compact dishwashers?

PRELIMINARY MANUFACTURER IMPACT ANALYSIS TOPICS

1 Issues

- 1.1 What are the key issues for your company regarding this product rulemaking?
- 1.2 Are there any patent, technology, or other issues that you are aware of that would prevent your company or competitors from implementing higher-efficiency designs or control algorithms?

2 Shipment Projections

- 2.1 What is your company's approximate market share in each of the product classes (i.e., standard and compact dishwashers)?
- 2.2 What percentage of your shipments are ENERGY STAR vs. baseline efficiency for each of the two product classes?
- 2.3 Would you expect your market share for either or both of the product classes to change once standards become effective? Does your outlook change with higher efficiency levels?
- 2.4 Approximately what percentage of total shipments are standard size versus compact?
- 2.5 How would you expect shipments in each product class to change for the industry as a whole as a function of standards and why?
- 2.6 Looking at price/cost effects only, how would you expect shipments in each product class to change for a 25%, 50%, 100% or 200% manufacturer price/cost increase?

3 Conversion Costs

- 3.1 What level of capital expenditure and product conversion costs would you anticipate to make at higher standard levels? Please describe what they are and provide your best estimate of their respective magnitudes.
- 3.2 How would the imposition of new energy conservation standards affect capacity utilization and manufacturing assets at your domestic production facilities? Would a new standard result in stranded capital assets? Would any facilities be closed or downsized? Added or upgraded?
- 3.3 How might a new standard impact product innovation?

4 Product Mix and Profitability

- 4.1 How would your company's product mix and marketing strategy change with changes in the efficiency standard?
- 4.2 Would the current percentage of shipments at the ENERGY STAR level be the same under a new standard? Note: a new ENERGY STAR level of 0.68 for standard size dishwashers will take effect in 2007.
- 4.3 What distribution channels are used from the manufacturer to the retail outlet? What is the share of product going through each distribution channel?
- 4.4 Generally how would new product standards impact your customer mix, distribution channels, and corresponding profit margins?
- 4.5 How might a new standard impact the ENERGY STAR program and consequently your firm?
- 4.6 What is the approximate percentage of shipments (i.e., market share) for each product, or more specifically, for each product class?

5 Market Shares and Industry Consolidation

- 5.1 In the absence of new standards, do you expect any industry consolidation?
- 5.2 How would new standards affect your ability to compete?
- 5.3 Could new standards disproportionately advance or harm the competitive positions of some firms?
- 5.4 Are there concerns over intellectual property?
- 5.5 Could new standards result in disproportionate economic or performance penalties for particular consumer/user subgroups?
- 5.6 Beyond price and energy efficiency, could new standards result in products that will be more or less desirable to consumers due to changes in product functionality, utility, or other features?

6 Cumulative Regulatory Burden

- 6.1 Are there recent or impending regulations on your specific product or other products that impose a cumulative burden on the industry?
- 6.2 If so, what is the total expected impact of those other regulations?

5B.3 DEHUMIDIFIER MANUFACTURER INTERVIEW GUIDE

The following questions comprised the interview guide DOE used while interviewing dehumidifier manufacturers.

HOME APPLIANCE RULEMAKING ANOPR INTERVIEW GUIDE -DEHUMIDIFIERS-

DESIGN FOR ENERGY IMPROVEMENT INFORMATION REQUEST

DOE would like to confirm information on the incremental costs of increasing product efficiency by understanding the design options involved in the efficiency improvement.

Residential Dehumidifiers

1. Which design features impacting energy use are generally incorporated into a “baseline” dehumidifier?
2. What design changes are generally required to convert a typical baseline 40 pint/day capacity dehumidifier (1.30 liters/kWh) to the ENERGY STAR level (1.50 liters/kWh)?
 - Are these design changes comparable for dehumidifiers of other capacities? If not, what changes would be required for a typical baseline 25 pint/day capacity dehumidifier to bring its efficiency to the ENERGY STAR level? For a 65 pint/day capacity?
 - What are the costs of the individual design options selected?
 - Are the aggregated industry costs representative of your firm’s costs?
3. What additional design changes are required to achieve the highest level (for this product class) in the ENERGY STAR database (1.74 liters/kWh)?
 - What are the costs of the individual design options selected?
 - Are the aggregated industry costs representative of your firm’s costs?
4. What are the fundamental differences between required design changes that make the cost increment much higher for some product class/sizes than others?
5. Would you help DOE understand and estimate the conversion capital investments that would be necessary at each candidate standard level? What is the nature of the capital investments?

6. Are installation costs a function of efficiency? Maintenance costs? Repair costs? If yes, would you please characterize this relationship by providing incremental installation, maintenance, and/or repair cost data?
7. Is there a relationship between dehumidifier capacity and efficiency? If yes, please characterize this relationship?
8. Is there one dehumidifier component that is the main driver of energy efficiency? How do compressor changes (e.g., size) affect dehumidifier efficiency? What are the impacts of increasing compressor size?

PRELIMINARY MANUFACTURER IMPACT ANALYSIS TOPICS

1 Issues

- 1.1 What are the key issues for your company regarding this product rulemaking?
- 1.2 Are there any patent, technology, or other issues that you are aware of that would prevent your company or competitors from implementing higher-efficiency designs or control algorithms?

2 Shipment Projections

- 2.1 What is your company's approximate market share in each of the product classes?
- 2.2 Would you expect your market share to change once standards become effective? Does your outlook change with higher efficiency levels?
- 2.3 How would you expect shipments to change for the industry as a whole as a function of standards and why?
- 2.4 Looking at price/cost effects only, how would you expect shipments to change for a 25%, 50%, 100% or 200% manufacturer price/cost increase?

3 Conversion Costs

- 3.1 What level of capital expenditure and product conversion costs would you anticipate to make at higher standard levels? Please describe what they are and provide your best estimate of their respective magnitudes.
- 3.2 How would the imposition of new energy conservation standards affect capacity utilization and manufacturing assets at your domestic production facilities? Would a new standard result in stranded capital assets? Would any facilities be closed or downsized? Added or upgraded?
- 3.3 How might a new standard impact product innovation?

4 Product Mix and Profitability

- 4.1 How would your company's product mix and marketing strategy change with changes in the efficiency standard?

- 4.2 Would the current percentage of shipments at the ENERGY STAR level be the same under a new standard?
- 4.3 What distribution channels are used from the manufacturer to the retail outlet? What is the share of product going through each distribution channel?
- 4.4 Generally how would new product standards impact your customer mix, distribution channels, and corresponding profit margins?
- 4.5 How might a new standard impact the ENERGY STAR program and consequently your firm?
- 4.6 What is the approximate percentage of shipments (i.e., market share) for each product, or more specifically, for each product class?

5 Market Shares and Industry Consolidation

- 5.1 In the absence of new standards, do you expect any industry consolidation?
- 5.2 How would new standards affect your ability to compete?
- 5.3 Could new standards disproportionately advance or harm the competitive positions of some firms?
- 5.4 Are there concerns over intellectual property?
- 5.5 Could new standards result in disproportionate economic or performance penalties for particular consumer/user subgroups?
- 5.6 Beyond price and energy efficiency, could new standards result in products that will be more or less desirable to consumers due to changes in product functionality, utility, or other features?

6 Cumulative Regulatory Burden

- 6.1 Are there recent or impending regulations on your specific product or other products that impose a cumulative burden on the industry?
- 6.2 If so, what is the total expected impact of those other regulations?

5B.4 COMMERCIAL CLOTHES WASHER MANUFACTURER INTERVIEW GUIDE

The following questions comprised the interview guide DOE used while interviewing commercial clothes washer manufacturers.

HOME APPLIANCE RULEMAKING ANOPR INTERVIEW GUIDE -COMMERCIAL CLOTHES WASHERS-

DESIGN FOR ENERGY IMPROVEMENT INFORMATION REQUEST

DOE would like to confirm information on the incremental costs of increasing product efficiency by understanding the design options involved in the efficiency improvement.

Commercial Clothes Washers

1. Which design features impacting energy use are generally incorporated into a “baseline” commercial clothes washer?
2. What design changes are generally required to convert a typical baseline commercial clothes washer (1.26 MEF, 9.5 WF) to the CEE Tier 1 level (1.42 MEF, 9.5 WF)?
 - Are these design changes comparable for horizontal- and vertical-axis washers?
 - What are the costs of the individual design options selected?
 - Are the aggregated industry costs representative of your firm’s costs?
3. What additional design changes are required to achieve the 2007 residential clothes washer ENERGY STAR level (1.72 MEF, 8.0 WF)?
 - What are the costs of the individual design options selected?
 - Are the aggregated industry costs representative of your firm’s costs?
4. What additional design changes are required to achieve the highest level in the CEC database (2.2 MEF, 5.5 WF)?
 - What are the costs of the individual design options selected?
 - Are the aggregated industry costs representative of your firm’s costs?
5. What are the fundamental differences between required design changes that make the cost increment much higher for some product class/sizes than others?
6. Would you help DOE understand and estimate the conversion capital investments that would be necessary at each candidate standard level? What is the nature of the capital investments?

7. Are installation costs a function of efficiency? Maintenance costs? Repair costs? If yes, would you please characterize this relationship by providing incremental installation, maintenance, and/or repair cost data?
8. Is there a relationship between MEF and WF? If yes, please characterize this relationship.

PRELIMINARY MANUFACTURER IMPACT ANALYSIS TOPICS

1 Issues

- 1.1 What are the key issues for your company regarding this product rulemaking?
- 1.2 Are there any patent, technology, or other issues that you are aware of that would prevent your company or competitors from implementing higher-efficiency designs or control algorithms?

2 Shipment Projections

- 2.1 What is your company's approximate market share in each of the product classes? (Note: there is only one product class for commercial clothes washers. Please provide market share information for horizontal- and vertical-axis washers.)
- 2.2 Would you expect your market share to change once standards become effective? Does your outlook change with higher efficiency levels?
- 2.3 How would you expect shipments to change for the industry as a whole as a function of standards and why?
- 2.4 Looking at price/cost effects only, how would you expect shipments to change for a 25%, 50%, 100% or 200% manufacturer price/cost increase?

3 Conversion Costs

- 3.1 What level of capital expenditure and product conversion costs would you anticipate to make at higher standard levels? Please describe what they are and provide your best estimate of their respective magnitudes.
- 3.2 How would the imposition of new energy conservation standards affect capacity utilization and manufacturing assets at your domestic production facilities? Would a new standard result in stranded capital assets? Would any facilities be closed or downsized? Added or upgraded?
- 3.3 How might a new standard impact product innovation?

4 Product Mix and Profitability

- 4.1 How would your company's product mix and marketing strategy change with changes in the efficiency standard?

- 4.2 Would the current percentage of shipments at the (residential) ENERGY STAR level be the same under a new standard?
- 4.3 What distribution channels are used from the manufacturer to the retail outlet? What is the share of product going through each distribution channel?
- 4.4 Generally how would new product standards impact your customer mix, distribution channels, and corresponding profit margins?
- 4.5 How might a new standard impact the ENERGY STAR program and consequently your firm?
- 4.6 What is the approximate percentage of shipments (i.e., market share) for each product, or more specifically, for each product class? (Note: there is only one product class for commercial clothes washers. Please provide product mix information for horizontal- and vertical-axis washers.)

5 Market Shares and Industry Consolidation

- 5.1 In the absence of new standards, do you expect any industry consolidation?
- 5.2 How would new standards affect your ability to compete?
- 5.3 Could new standards disproportionately advance or harm the competitive positions of some firms?
- 5.4 Are there concerns over intellectual property?
- 5.5 Could new standards result in disproportionate economic or performance penalties for particular consumer/user subgroups?
- 5.6 Beyond price and energy efficiency, could new standards result in products that will be more or less desirable to consumers due to changes in product functionality, utility, or other features?

6 Cumulative Regulatory Burden

- 6.1 Are there recent or impending regulations on your specific product or other products that impose a cumulative burden on the industry?
- 6.2 If so, what is the total expected impact of those other regulations?